

ABSTRACT

A gas flow receiver has a non-symmetrical-flow-inducing diaphragm mounted in a flow tube causing accentuated higher pressure near an upstream orifice than would be sensed in a corresponding cross-section of the flow tube and accentuated lower pressure near a downstream orifice. A gas flowmeter using thermoanemometer-type transducers receiving gas flow from the upstream orifice is made immune to vibration or acceleration, for example, by arranging a pair of transducers parallel to one another with the gas flow passing serially through them, but in opposite directions. Signal filtering is provided by varying the sample-averaging period as a function of the transducer's analog signal amplitude, such that the sample-averaging period is longer for lower amplitude values and shorter for higher amplitude values. Since the flowmeter has a non-linear response, a calibrated output signal representing flow is obtained by forming an analytical solution for the non-linear function, by polynomial fitting, using sub-linear powers.